

CERTIFICATION OF FAXIMILE TRANSMISSION

I HEREBY CERTIFY THAT THIS PAPER IS BEING FAXIMILE TRANSMITTED TO THE PATENT AND TRADEMARK OFFICE ON THE DATE SHOWN BELOW.

Deanna Sullivan

TYPE OR PRINT NAME OF PERSON SIGNING CERTIFICATION
Deanna Sullivan
 SIGNATURE: 5-29-98
 DATE

Example 12
**TEST RESULTS ON COPPER-CLAD EPOXY GLASS, GLASS POLYIMIDE,
 AND POLYIMIDE**

Sample	Via Diameter (μm)	Speed (mm/s)	Bite Size (μm)	Rep Rate (kHz)	# Passes	Taper (μm)	Throughput (holes/sec)
1	102	8	--	3.2	15	12	1.7
2	51	3.2	--	1.6	10	12	2.4
3	102	7.8	--	3.1	5	12	4.4
4	51	3.2	--	2.1	2	12	7.8
5	25	N/A	--	4	100 pulses	12	15
6	102	7.6	--	1.5	6	12	3.8
7	51	3.2	--	1.6	4	12	5.3
8	102	8	--	+5	10	12	2
9	51	3.2	--	+20	1	12	3.7

Fig. 23

Approved 6-15-98 5 m

Fig. 24

Power Density = Fluence/Pulse Width

Example 12	mW	Spot Size Diameter micro-m	Spot Radius microm	Repetition Rate Hz	Spot Area m ²	Spot Area cm ²	Power/ Rep. Rate J	Fluence J/cm ²	Power Density W/cm ²	
									@40 ns	@90 ns
Sample 1	225	25	12.5	3200	4.91E-10	4.91E-06	7.03E-05	14.32	3.58 x 10 ⁸	1.59 x 10 ⁸
Sample 2	225	25	12.5	1600	4.91E-10	4.91E-06	1.41E-04	28.72	7.18 x 10 ⁸	3.19 x 10 ⁸
Sample 3	225	25	12.5	3100	4.91E-10	4.91E-06	7.26E-05	14.79	3.70 x 10 ⁸	1.64 x 10 ⁸
Sample 4	225	25	12.5	2100	4.91E-10	4.91E-06	1.07E-04	21.79	5.45 x 10 ⁸	2.42 x 10 ⁸
Sample 5	225	25	12.5	4000	4.91E-10	4.91E-06	5.63E-05	11.47	2.87 x 10 ⁸	1.27 x 10 ⁸
Sample 6	225	25	12.5	1500	4.91E-10	4.91E-06	1.5E-04	30.5	7.63 x 10 ⁸	3.39 x 10 ⁸
Sample 7	225	25	12.5	1600	4.91E-10	4.91E-06	1.41E-04	28.72	7.18 x 10 ⁸	3.19 x 10 ⁸
Sample 8	225	25	12.5	5000	4.91E-10	4.91E-06	4.5E-05	9.16	2.29 x 10 ⁸	1.02 x 10 ⁸
Sample 9	225	25	12.5	20000	4.91E-10	4.91E-06	1.13E-05	2.30	5.75 x 10 ⁷	2.56 x 10 ⁷